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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/857,606 | 08/02/2001 | Mats Dahlback | 19378.0011 | 6441 |

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WILKINS III, HARRY D

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| ART UNIT | PAPER NUMBER |
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1742

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/857,606

Applicant(s)

DAHLBACK ET AL.

Examiner

Harry D. Wilkins, III

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13,22,23 and 35-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13,22,23 and 35-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5/31/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 13, 22 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification only provides support for the range of O being 500-1600 ppm. Thus, the range presently claimed is not fully supported in the specification as filed.

In response to Applicant's arguments, with respect to Si, the Examiner's rejection is withdrawn based on the table which shows a maximum Si content of 120 ppm.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 13, 22, 23, 35, 36 and 37 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Mardon et al (US 5,023,048) as supported by Van Swam and Garde et al.

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Mardon et al anticipate the invention as claimed. Mardon et al teach (see abstract) a Zr-alloy used as a cladding tube for nuclear fuel that contains 0.35-0.65 wt% Sn, 0.20-0.65 wt% Fe and 0.35-0.65 wt% Nb. This composition overlaps the presently claimed range at 0.65 wt% Sn, 0.3-0.6 wt% Fe and at 0.65 wt% Nb. The alloy further contains 900-1600 ppm O. See MPEP 2131.03. Since Si is not intentionally added to the alloy of Mardon et al, one of ordinary skill in the art would have expected the alloy to inherently contain only an impurity amount.

Regarding claim 35, Mardon et al teach the alloy as claimed. Since the Si is only optionally present, its presence is not required. Thus, Mardon et al teach the composition.

Regarding claims 22, 23, 36 and 37, Mardon et al teach (see col 2, lines 55-59) that the inner tubular layer (see Figure) is made of a Zr-alloy of conventional type. Conventional inner layers were made from pure Zr or a Zr-0.4Fe alloy (for support see Van Swam at col 7, lines 45-49 and Figure 2B). The Zr or Zr-0.4Fe alloys possess less strength, and thus, less ductility, than the alloy of Mardon et al (for support see Garde et. al '308 at col 4, lines 40-44).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 38, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mardon et al (US 5,023,048) in view of Garde et al (US 5,211,774).

The teachings of Mardon et al are described above.

However, Mardon et al do not teach including Si at 50-120 ppm.

Garde et al teach (see abstract) a similar zirconium-based alloy for fuel claddings (see col. 1, lines 6-13) that contains 50-200 ppm Si and typically 100 ppm for the purpose of reduced hydrogen absorption.

Therefore, it would have been obvious to one of ordinary skill in the art to have added 100 ppm Si as taught by Garde et al to the alloy of Mardon et al because the Si addition would improve the resistance of the alloy to hydrogen absorption.

Regarding claims 39 and 40, Mardon et al teach (see col 2, lines 55-59) that the inner tubular layer (see Figure) is made of a Zr-alloy of conventional type. Conventional inner layers were made from pure Zr or a Zr-0.4Fe alloy (for support see Van Swam at col 7, lines 45-49 and Figure 2B). The Zr or Zr-0.4Fe alloys possess less strength, and thus, less ductility, than the alloy of Mardon et al (for support see Garde et al '308 at col 4, lines 40-44).

Response to Amendment

7. The declaration under 37 CFR 1.132 filed 31 May 2005 is insufficient to overcome the rejection of claims 13, 35 and 38 based upon Mardon et al as set forth in the last Office action because: Mardon et al anticipates the claims. Anticipation of a claimed composition cannot be overcome by a showing of unexpected results.

Response to Arguments

8. Applicant's arguments filed 31 May 2005 have been fully considered but they are not persuasive. Applicant has argued that:

a. The range of O being "up to 1600 ppm" is supported by the specification.

In response, the Examiner disagrees. The specification indicates that there are impurities in the alloy, but that they should be kept below a certain maximum allowable amount. However, the disclosures of Si and O are outside of that of the impurities, as indicated by the fact that Applicant's specification states "It should however be noted that small amounts of impurities may exist in the alloy. ... Furthermore, small amounts of Si and O may exist in the alloy." This indicates that the amounts of Si and O added are not impurity levels and that they are intentional additions to the alloy. Hence, one of ordinary skill in the art would not consider an O range of "up to 1600 ppm" being fully supported by the specification as filed. The only range of O supported by the specification is 500-1600 ppm.

b. A cladding tube as claimed is not taught by Mardon et al.

In response, Applicant has attempted to give the term "cladding tube" a special definition to mean the part of a nuclear fuel cladding which has the greatest thickness. However, the specification does not support such a special definition. Thus, the Examiner must give the claims their broadest reasonable interpretation. A cladding tube is any tube shaped object which surrounds a cylindrical object. Hence, Mardon et al meets the claim limitation of being a cladding tube.

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c. Mardon et al merely teaches end points that touch the claimed ranges, not the full scope of the claimed ranges and therefore does not anticipate nor obviate the claimed invention due to a showing of unexpected results.

In response, the Examiner does not find this argument persuasive. In MPEP 2131.03, the requirement for anticipation if end points of a range are touching is that the prior art teach the range with "sufficient specificity". In the case of metal alloys, especially with an alloy with so few components, a clearly disclosed range with end points clearly explains to one of ordinary skill in the art what the ranges of the alloy are, and thus, is disclosed with "sufficient specificity".

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-Th 10am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Harry D Wilkins, III
Examiner
Art Unit 1742

hdw


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SUPERVISORY PATENT EXAMINER
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